Values and Behavior: Strength and Structure of Relations

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Three studies address unresolved issues in value-behavior relations. Does the full range of different values relate to common, recurrent behaviors? Which values relate more strongly to behavior than others? Do relations among different values and behaviors exhibit a meaningful overall structure? If so, how to explain this? We find that stimulation and tradition values relate strongly to the behaviors that express them; hedonism, power, universalism, and self-direction values relate moderately; and security, conformity, achievement, and benevolence values relate only marginally. Additional findings suggest that these differences in value-behavior relations may stem from normative pressures to perform certain behaviors. Such findings imply that values motivate behavior, but the relation between values and behaviors is partly obscured by norms. Relations among behaviors, among values, and jointly among values and behavior exhibit a similar structure. The motivational conflicts and congruities postulated by the theory of values can account for this shared structure.

Keywords: *values; behavior*

Values are important for understanding various social-psychological phenomena (see review in Schwartz & Bardi, 2001). Overt behavior is a particularly important potential consequence of values, worth extensive research. Unless there is a clear link between values and behavior, there is little point to efforts to establish and change values in daily conducts, such as in education and the mass media. Thus, it may be surprising that researchers show little agreement regarding the role of values in guiding behavior. Some hold that values guide behavior and even include this guiding role in their definition of values (e.g., Allport, 1961; Rokeach, 1973). Others conclude that values guide behavior only rarely and not for most people (e.g., Kristiansen & Hotte, 1996;

McClelland, 1985). Numerous empirical studies link values to behavior. Most of these, however, examine single behaviors (e.g., Rokeach, 1973; Schwartz, 1996) or sets of behavior presumed to express one content domain of values (e.g., prosocial behavior, religiosity) (Bond & Chi, 1997; Schwartz & Huismans, 1995). It is still unclear whether values relate to behavior generally or only that some values relate to some behaviors.

The current research examines relations of a comprehensive set of values to a wide range of behaviors. This enables us to provide global assessments of value-behavior relations that extend beyond a few content domains of values and behavior. This approach also enables us to compare values in terms of the strength of their relations to behavior. We investigate the structure of relations between the comprehensive set of values and the range of behaviors. We argue that a single motivational structure organizes the relations among the sets of values and behavior.

PERSONAL VALUES

What are personal values? Values convey what is important to us in our lives. Each person holds numerous values (e.g., achievement, benevolence) with varying degrees of importance. A particular value may be very important to one person but unimportant to another. Values are a motivational construct. They represent broad goals that apply across contexts and time (Rokeach, 1973; Schwartz, 1997; Schwartz & Bilsky, 1987, 1990). For example, giving importance to power values implies striving for power at work, at home, with friends, and so forth.

People generally know what is important to them. Hence, when asked about their values, they can usually give reasonably accurate reports. People may act in accordance with their values even when they do not consciously think about them. Thus, values may operate outside of awareness but they are available for retrieval from memory. Values are relatively stable motivational characteristics of persons that change little during adulthood (e.g., Feather, 1971; Rokeach, 1973; Schwartz, 1997). (For comparisons of values with attitudes, goals, and needs, see Rohan, 2000; Schwartz, 1992, 1997.)

What are the basic contents of values? Based on universal requirements of human existence, the Schwartz (1992) value theory defines 10 broad values according to the motivation that underlies each of them. These values are presumed to encompass the range of motivationally distinct values recognized across cultures. Table 1 provides the definitions of each broad value and lists, in parentheses, specific value items that represent it.

A key aspect of the Schwartz value theory is the postulated structure of relations among values. The pursuit of each value has psychological, practical, and social consequences that may conflict or may be congruent with the pursuit of other values. For example, actions intended to foster social order (a security value) also are likely to promote obedience (a conformity value). However, these same actions are likely to conflict with actions that promote self-direction values such as independence and freedom. The circular structure in Figure 1 portrays the total pattern of relations of conflict and congruity among values. Conflicting values are in opposing directions from the center; congruent values are adjacent to one another in the circle. The entire circle of values constitutes a motivational continuum. The further away around the circle any two values are located, the more dissimilar the motivations they express (see Schwartz, 1992, for a full elaboration of the theory).

The correspondence between the hypothesized and actual content and structure of values was assessed by Smallest Space Analysis (SSA) (Borg & Lingoes, 1987; Guttman, 1968). This is a multidimensional scaling technique (MDS). SSA was used to map the relations among

TABLE 1:   Definitions of Types of Values and the Items That Represent and Measure Them

Power: Social status and prestige, control or dominance over people and resources (social power, authority, wealth)

Achievement: Personal success through demonstrating competence according to social standards (successful, capable, ambitious, influential)

Hedonism: Pleasure and sensuous gratification for oneself (pleasure, enjoying life)

Stimulation: Excitement, novelty, and challenge in life (daring, a varied life, an exciting life)

Self-direction: Independent thought and action-choosing, creating, exploring (creativity, freedom, independent, curious, choosing own goals)

Universalism: Understanding, appreciation, tolerance and protection of the welfare of all people and of nature (broadminded, wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature, protecting the environment)

Benevolence: Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (helpful, honest, forgiving, loyal, responsible)

Tradition: Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self (humble, accepting my portion in life, devout, respect for tradition, moderate)

Conformity: Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms (politeness, obedient, self-discipline, honoring parents and elders)

Security: Safety, harmony and stability of society, of relationships, and of self (family security, national security, social order, clean, reciprocation of favors)

all value items simultaneously in a two-dimensional space based on the Pearson correlations among the importance scores of each pair of values. The more positive the correlation, the closer the values on the map. If the theoretical structure is correct, then the predicted circular structure should emerge on the map. Separate analyses carried out in each of 65 cultures largely replicated the discrimination of the 10 postulated broad values and their structure (Schwartz, 1992, 1994; Schwartz & Sagiv, 1995). Confirmatory factor analysis of value relations across 23 countries also replicated the structure (Schwartz & Boehnke, 2002). Thus, the structure of motivational conflicts and congruities is nearly universal. Of course, individuals differ substantially in how important each value is to them.

VALUES AND BEHAVIOR

The natural way to pursue important values is to behave in ways that express them or promote their attainment. People pursue security values by acting in ways that promote their personal safety, and they pursue hedonism values by engaging in pleasurable activities. Most behaviors can express more than one value. For example, people might go hiking because they like
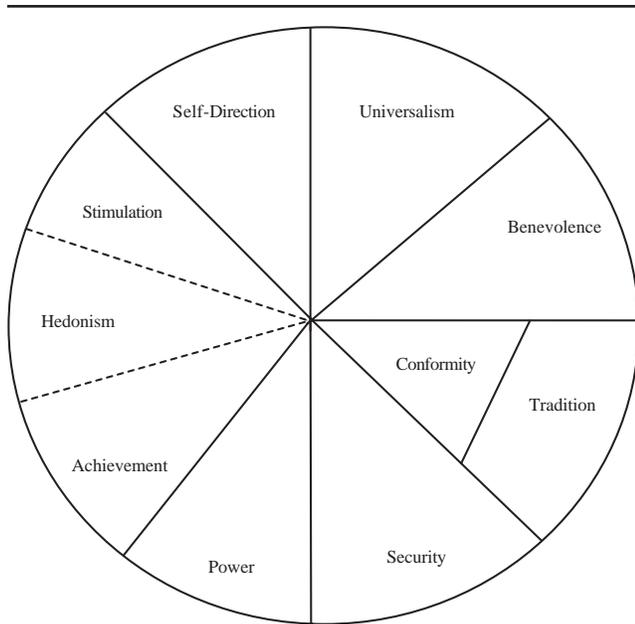
Figure 1   Theoretical structure of values.

adventure (stimulation values), love nature (universalism values), or want to comply with their friends' expectations (conformity values). Similar to hiking, many behaviors are ambiguous with regard to the values they express. Still, some behaviors express primarily one value. Dominating behavior, for example, primarily expresses power values. In this article, we use the term "value-expressive behavior" to refer to behaviors that can express primarily one value.

Why do people behave according to their values? One possible reason is a need for consistency between one's beliefs (values) and actions (e.g., Rokeach, 1973). Another is that value-consistent action is rewarding; it helps people get what they want. Studies that report relations of values to behavioral intentions in hypothetical situations (Feather, 1995; Sagiv & Schwartz, 1995) demonstrate that people want to act according to their values. However, these are only hypothetical behaviors. In real-life situations, values are but one of many factors that may influence behavior. Therefore, estimating the strength of relations between values and behavior requires measuring actual behavior.

Previous studies have shown that values relate to choice behavior in real-life situations (summarized in Schwartz & Bardi, 2001). For example, values predicted choosing a university course (Feather, 1988) and voting for political parties (Schwartz, 1996). These are examples of behaviors that people choose carefully after weighing the pros and cons of alternatives. In such choice situations, values are likely to come to mind and influence decisions. But most behavior is more spontaneous. We rarely think about our value priorities before

interrupting a conversation partner (power values) or indulging in a tempting desert (hedonism values). If behavior relates to values only when there is conscious, careful choice, effects of values on behavior are limited to a small subset of situations. Indeed, McClelland (1985) argued that values are likely to influence behavior only when behavior stems from conscious decisions.

Values may, however, influence behavior through mechanisms, such as habits, that do not require conscious decisions. In fact, there is some evidence that values relate to common, ongoing behavior. For example, Sagiv and Schwartz (2002) found that values predict whether counselees exhibit independent versus dependent behavior throughout a number of career counseling sessions.

Are relations of values to common behaviors a general phenomenon or are they limited to certain values and contexts? The current investigation examines relations of all 10 broad values to various common behaviors to assess how far we may generalize. For each of the 10 values, we generated sets of relevant behaviors, most of which ordinarily do not involve careful deliberation. We used a measure that reflects the frequency of behavior across time and contexts. This allows us to go beyond specific situations to global value-behavior relations. We expect values to predict the sets of behavior that primarily express them. Nonetheless, the many other factors that influence behavior in natural settings make it reasonable to expect relations only to be of moderate size. In each study, we examine the relations of the 10 broad values to the 10 sets of behavior generated according to the same principles. This enables us to compare the relative strength of value-behavior relations for different values, a question not addressed before.

OVERALL STRUCTURE OF RELATIONS
AMONG BEHAVIORS AND VALUES

As noted earlier, two values are congruent if the actions typically taken to express each of them are compatible with attaining the other value. For example, universalism and benevolence values are congruent because actions that express both values promote the welfare of others. Hence, behaviors that express benevolence and universalism values are congruent and may be positively interrelated. In contrast, values conflict if the actions that express one value hinder attainment of the other value. For example, tradition and hedonism values are incongruent because behavior that expresses commitment to tradition usually requires self-constraint that clashes with the hedonistic pursuit of sensual pleasure. Thus, behaviors that express tradition and hedonism values are incongruent and may be negatively interrelated.

By analyzing the congruities and conflicts between all pairs of behavior sets that express the 10 values, we

derive the expected overall structure of relations among value-expressive behaviors. This structure should resemble the structure of values presented in Figure 1. In other words, we suggest that the set of motivational conflicts and congruities that organizes value relations also organizes relations among value-expressive behaviors. Any deviation from this structure would suggest ways in which behaviors are organized differently from values.

If values and value-expressive behaviors are organized by the same motivational conflicts and congruities, then a joint analysis of values and value-expressive behaviors should yield a single circular structure. In this structure, behaviors should be located close to the values they express and to motivationally compatible values. Moreover, behaviors should be located farthest away from the values they violate. The implication of such a structure is that each behavior is meaningfully related to all values, and each value is meaningfully related to all behaviors, not only the ones that directly express it. Thus, the joint structure of values and behavior provides an additional dimension for studying value-behavior relations. If the joint structure of values and value-expressive behaviors deviates from this structure, it would suggest differences in the motivational implications of values and behavior.

We examine the strength of value-behavior relations in three studies. We aggregate data from Studies 2 and 3 to examine the structure of value-behavior relations.

STUDY 1: VALUES AND SELF-RATINGS OF BEHAVIOR

Our first goal was to obtain global assessments of the strength of value-behavior relations across time, situations, and domains of behavior. We measured behavior using a method similar to Buss and Craik's (1983) act-frequency approach. This approach holds that the best reflection of a tendency is its frequency across time and situations, as estimated by self- or observer reports. Each tendency is measured by a set of behaviors, some of which may seem quite different, but all are behavioral manifestations of the same category. For each of the 10 broad values, we generated a set of behaviors that primarily express it and cover its content. We asked respondents to estimate how often they had engaged in each behavior in the past year.

Method

Participants. 102 undergraduate students participated in the study (75 women; age: $M = 22$ years, $SD = 3$). They received either partial course credit or payment equivalent to $6.

Value measurement. We measured values with the Schwartz Value Survey (Schwartz, 1992; Schwartz, Sagiv, & Boehnke, 2000). This survey lists 57 value items, each followed by a short definition in parentheses. Participants rate each value as a guiding principle in their own life on a 9-point scale from –1 (*opposed to my principles*) to 0 (*not important*) to 7 (*of supreme importance*). The asymmetry of the scale reflects the discriminations people naturally make when thinking about value importance, reflecting the desirable nature of values (Schwartz & Bardi, 2001). Before rating the value items, participants read the whole list and choose the values most and the least important for them. This anchors the ratings and prevents shifting criteria of value importance as respondents go through the survey.

Forty-five of the value items in the survey have demonstrated nearly equivalent meaning across 65 nations around the world (Schwartz, 1992, 1994). These 45 value items were therefore used to index the 10 values. Indexes are computed by averaging the importance ratings of the value items that represent each value, listed in Table 1. Studies with samples from many countries have established that these indexes have adequate internal reliability (e.g., Schmitt, Schwartz, Steyer, & Schmitt, 1993), temporal stability, and external validity (reviewed in Schwartz & Bardi, 2001) and that scores are not contaminated by social desirability (Schwartz, Verkasalo, Antonovsky, & Sagiv, 1997).

Behavior measurement. To construct a questionnaire for behavior reports, we used a method similar to Buss and Craik (1983). We first asked undergraduates to generate behaviors that express each of the 10 values. We then eliminated unsuitable or redundant behaviors and corrected the phrasing of others. Subsequently, judges familiar with the value theory evaluated how well each of these behaviors expresses the intended value. This yielded 80 behavior items, 6 to 10 for each behavior set. The different numbers of items in the behavior sets reflect differences both in the breadth of the content of the values and in the diversity of contexts in which each value may be pursued. Table 2 presents examples of behavior items for each value.

Participants rated the frequency with which they had performed each behavior in the past year, relative to their opportunities to perform it. Taking opportunities into account was crucial because opportunities substantially affect frequency of performance (e.g., respondents who live with their parents have more opportunities to "obey my parents" than those who do not). Participants were instructed to think of all the times they had an opportunity to engage in each behavior and to estimate how often, of these times, they actually engaged in the behavior. Participants responded on a 4-point scale from 0 (*never*) to 3 (*frequently*). The labels of each scale point emphasized enactment relative to opportunity. For example, 3 (*frequently*) was defined as "I have engaged in this behavior more than half the times I had opportuni-

TABLE 2:   Examples of Behavior Items Expressive of Each Value

Values	Behavior Items
Power	Pressure others to go along with my preferences and opinions
	Choose friends and relationships based on how much money they have
Achievement	Study late into the night before exams even if I studied well in the semester
	Take on many commitments
Hedonism	Take it easy and relax
	Consume food or drinks even when I'm not hungry or thirsty
Stimulation	Watch thrillers
	Do unconventional things
Self-direction	Examine the ideas behind rules and regulations before obeying them
	Come up with novel set-ups for my living space
Universalism	Use environmentally friendly products
	Make sure everyone I know receives equal treatment
Benevolence	Agree easily to lend things to neighbors
	Keep promises I have made
Tradition	Observe traditional customs on holidays
	Show modesty with regard to my achievements and talents
Conformity	Obey my parents
	Avoid confrontations with people I don't like
Security	Refrain from opening my door to strangers
	Buy products that were made in my country

ties to do so." The 10 behavior indexes were the average frequency ratings of the items that express each value.

To pretest the behavior measure, we obtained self-reports from 385 undergraduate students (281 women). The internal reliability coefficient (alpha) ranged widely from .49 for the eight security behaviors to .76 for the eight power behaviors ($M = .68$ across the 10 indices). This variation in alphas corresponded to differences in the breadth of the value constructs and in the range of contexts in which values may be pursued (see Pedhazur & Schmelkin, 1991). Power values are conceptually narrower than security values. Power values refer to personal dominance over others; security values concern security in the close environment, the family, and the nation. The behavior indices exhibited reasonable temporal stability in the pretest, yielding stability coefficients of .60 to .84 throughout 4 weeks.

Because people differ in the way they use the response scale of the value survey, it is important to control for scale use when analyzing values (Schwartz, 1992). Similarly, we found that participants differed in their use of the response scale of the behavior questionnaire. We therefore controlled for differences in scale use by ipsatizing scores. We centered each participant's responses around his or her mean response on each questionnaire.

Procedure. Early in the academic year, introductory psychology students completed the self-report questionnaire in their classroom as part of a study of behavior. At least 2 weeks later and throughout the academic year, participants came to the laboratory for a separate study with a different experimenter. In this study, the value survey was one of the first tasks, followed by other questionnaires and tasks not used here. Participants who had not completed the behavior questionnaire previously completed it at the end of the session.[1]

Results

Table 3 presents the correlations between the 10 values and the corresponding behavior sets.[2] Correlations range from .30 for benevolence to .68 for stimulation, all significant ($p < .01$).

Because the values are organized in a circular structure, any given value correlates positively with adjacent values in the circle. Therefore, behaviors that express any given value also might correlate somewhat positively with the adjacent values in the circle. However, behaviors should correlate most positively with the values that they were intended to express and values should correlate most positively with the behaviors that were intended to express them. Of the 180 possible deviations from this expected pattern (10 values × [9 noncorresponding behavior sets + 9 noncorresponding values]), 4 slight deviations were observed here. The deviating correlations are presented in columns three and four of Table 3. These deviations were, however, very small and did not exceed .06.

As Column 2 of Table 3 indicates, some values relate more strongly to behavior than others. Stimulation, tradition, and hedonism values correlate most strongly; benevolence, security, achievement, and conformity values exhibit the lowest correlations. We discuss the different levels of value-behavior relations after examining which ones replicate across studies.

Self-reports of behavior can be quite accurate (see Golsing, John, Craik, & Robins, 1998). However, the shared method variance with value measurement may inflate correlations (McBroom & Reed, 1992). Therefore, Study 2 used behavior reports by other observers.

STUDY 2: VALUES AND PARTNER
RATINGS OF BEHAVIOR

Intimate partners who live together in long-standing relationships have many opportunities to observe their partner's behavior across contexts and time. Thus, they can provide relatively accurate assessments of their partner's recurring behavior. Of course, even intimate partners do not have access to all of one another's behavior. We therefore expect values to correlate with behavior ratings by intimate partners more weakly than in Study 1.

TABLE 3:   Study 1: Value-Behavior Correlations in Same Domain and Values and Behaviors With Stronger Correlations With Other Domains

| | | Value-Behavior Correlation | Stronger Value-Behavior Correlation With | |
| | No. of Behavior | Same | Other | |
Value Domain	Items	Domain	Behavior	Other Value
Power	8	.52**		
Achievement	7	.33**		Power .38
Hedonism	7	.62**		
Stimulation	6	.68**		
Self-direction	9	.42**		
Universalism	8	.55**		
Benevolence	10	.30**	Tradition .33	
Tradition	9	.67**		
Conformity	8	.39**	Tradition .45	
Security	8	.32**	Conformity .38	

**p < .01.

Method

Participants. Both partners in 50 student couples participated in the study. They were paid the equivalent of $3. Each partner served as the target whose behavior was rated in one set of analyses and as the rater of partner's behavior in a second set of analyses. Sample diversity was enhanced by including students from religious and art schools together with university students. Mean age was 27 (SD = 3). All couples lived together at the time of the study and had been partners for at least 1 year (M = 5 years, SD = 3). On a 5-point scale, 99% described their familiarity with their partner as excellent (88%) or very good (11%).

Procedure. The research was presented as a study of partner familiarity with one another. Both partners completed the questionnaires at the same time, in their homes, in the presence of an experimenter who administered them one at a time. The value survey was first, then the rating of partner behavior, then other questionnaires not used here, and finally, self-reported behavior.

The self-reports of behavior served to replicate Study 1 and to assess agreement with partner reports of behavior. The internal reliabilities (alphas) of the partner reports of behavior ranged from .46 to .82 (M = .72). This is similar to the reliabilities of the self-reports in the pretest. Because each partner served both as a target and as a rater, using data from both partners in the same analyses would violate the assumption of independence of observations. We therefore adopted a cross-validation strategy. We split the sample into two random subsamples, each including only one member of each couple. Each subsample had 50% women and 50% men as targets and as raters. We analyzed the data in each subsample separately.

Results

Table 4 presents correlations averaged across the two split-half subsamples. Column 1 presents the correlations between the 10 values and the self-reports of the behavior sets in the corresponding domain. Correlations range from .32 to .76, all significant. All of the behavior sets correlate most positively with the values that they express and all the values correlate most positively with their corresponding behaviors. As in Study 1, tradition and stimulation values correlate most strongly with their corresponding behaviors, and security, achievement, and conformity values correlate most weakly.

Column 4 of Table 4 presents the correlations between self-reports and partner-reports of behavior. This indicates self-other agreement on behavior frequency. Correlations range from .29 for benevolence to .79 for tradition, and all are significant.

Column 5 of Table 4 presents the correlations between the 10 values and partner-reports of the corresponding behavior sets. Six of the 10 correlations are significant, and the correlation between tradition values and behaviors is particularly high. In the domains of self-direction, hedonism, stimulation, universalism, and power, value-behavior correlations are also significant (range .32 to .44). Four values do not correlate significantly with their corresponding behaviors—conformity, achievement, security, and benevolence. These values also had the lowest value-behavior correlations in Study 1, where behavior was measured by self-reports. Three of them also had the lowest correlations using the self-reports in this study.

Column 6 of Table 4 presents instances of values that correlate more highly with behaviors other than the set intended to express them. There is one small deviation for benevolence values and two for conformity values. There is one striking deviation from expectations. Conformity values do not correlate with their intended behaviors (r = .04) but correlate .47 with behaviors that express tradition values. Conformity behaviors also correlate more positively with tradition values than with conformity values.

Although partners are probably the observers with the greatest knowledge base, they may be prone to biases. Their emotional investment in one another may incline them to see their partners in the same way that their partners see themselves. To examine value-behavior relations with more objective observers, Study 3 measured behavior with peer reports.

STUDY 3: VALUES AND PEER-RATED BEHAVIOR

Peers have access to many of one another's behaviors and may be less biased than partners by their emotional

TABLE 4: Study 2: Value-Behavior Correlations in Same Domain Based on Self- and Partner Reports, Self-Partner Agreement on Behavior Rating, and Values and Behaviors With Stronger Correlations With Other Domains

| Value Domain | Self-Reported Behavior Correlation With | | | Self-Partner Agreement | Partner-Reported Behavior Correlation With | | |
| | Same Domain | Other Domains Stronger | | | Same Domain | Other Domains Stronger | |
		Behaviors	Values			Behaviors	Values
PO	.47**			.32*	.32*		
AC	.43**			.45**	.16		
HE	.51**			.62**	.44**		
ST	.53**			.64**	.35**		
SD	.50**			.65**	.44**		
UN	.52**			.53**	.34*		
BE	.52**			.29*	.26	TR .35	
TR	.76**			.79**	.64**		
CO	.46**			.40**	.04	TR .47	TR .17
						SE .13	
SE	.32*			.39**	.20		

NOTE: PO = power, AC = achievement, HE = hedonism, ST = stimulation, SD = self-direction, UN = universalism, BE = benevolence, TR = tradition, CO = conformity, SE = security.
*$p < .05$. **$p < .01$.

links. However, peers' knowledge base is more limited than partners'. Hence, peer ratings of behavior may be less valid and may yield weaker value-behavior correlations. We therefore expected value-behavior correlations to be lower in Study 3 than in Study 2. Correlations based on peer ratings probably underestimate actual value-behavior relations.

Method

Participants. 182 people participated in the study. Of these, 91 were targets whose behavior was rated (68 women; age: $M = 23$ years, $SD = 4$). These were undergraduate students who received partial course credit or payment equivalent to $6. The remaining participants were 91 peers (61 women) who rated targets' behavior. Raters had known the targets for an average of 10 years ($SD = 8$). On a 5-point scale, 98% of raters described their familiarity with the target as excellent (58%) or very good (40%).

Procedure. The procedure was similar to that of Study 1. Target participants provided the phone number of a close acquaintance. We contacted the acquaintances and administered a version of the behavior questionnaire over the phone.

Measures. Participants completed the same value survey and self-report behavior questionnaire used in Studies 1 and 2. Raters completed a shorter, 40-item version of the behavior questionnaire because the full 80-item version might exceed raters' attention span over the telephone and undermine willingness to cooperate. We selected four items for each behavior scale from the 80-item version using three criteria: (a) coverage of the broad content of each value, (b) behaviors likely to be

observed by others, and (c) behaviors with good item-to-total correlations in the pretest. Because of the much shorter scales, the alpha coefficients of internal consistency were smaller: power .56, achievement .67, hedonism .51, stimulation .57, self-direction .32, universalism .73, benevolence .57, tradition .59, conformity .60, and security .12. The security and self-direction scales had particularly low alpha coefficients, perhaps because they included behavior items that were very diverse to cover all elements of the content domain of the values.

Results

Column 1 of Table 5 presents the correlations between the 10 values and self-reports of the corresponding behavior scales. They range from .28 to .71, and all are significant ($p < .01$). As in Studies 1 and 2, stimulation and tradition values correlate most strongly with their corresponding behaviors, and security, conformity, and achievement correlate least strongly. The two domains with the lowest value-behavior correlations, conformity and security, had higher correlations with adjacent domains, as shown in columns 2 and 3.

Column 4 of Table 5 presents the correlations between self-reports and rater reports of behavior. Correlations range from .25 to .63, and all are significant. As anticipated, rater agreement is lower in this study than with partner reports.

Column 5 of Table 5 presents the correlations between values and peer reports of the corresponding behaviors. Six of the 10 values correlate significantly with the matching behaviors. Replicating Studies 1 and 2, stimulation exhibited the highest correlation ($r = .46$). Tradition, hedonism, power, achievement, and universalism also show significant value-behavior correlations.

TABLE 5:   Study 3: Value-Behavior Correlations in Same Domain With Self- and Peer Reports, Rating Agreement, and Values and Behaviors With Stronger Correlations With Other Domains

| Value Domain | Self-Reported Behavior Correlation With | | | Self-Peer Agreement | Peer-Reported Behavior Correlation With | | |
| | Same Domain | Other Domains Stronger | | | Same Domain | Other Domains Stronger | |
		Behaviors	Values			Behaviors	Values
PO	.57**			.36**	.28**		
AC	.38**			.34**	.28**		
HE	.48**			.40**	.28**		
ST	.71**			.56**	.46**		
SD	.51**			.40**	.18		
UN	.40**			.30**	.27**		
BE	.47**			.26**	.13	UN .19, CO .17	
TR	.60**			.63**	.28**		
CO	.29**	SE .42	TR .34	.41**	.18	TR .23	
SE	.28**		CO .42	.25*	.03	TR .09 AC .08 PO .06	TR .19 CO .18

NOTE: PO = power, AC = achievement, HE = hedonism, ST = stimulation, SD = self-direction, UN = universalism, BE = benevolence, TR = tradition, CO = conformity, SE = security.
$*p < .05. **p < .01.$

Three of the four domains in which value-behavior correlations were not significant— security, benevolence, and conformity—were also not significant in Study 2. Here, with peer-reports of behavior, value-behavior correlations were also not significant in the self-direction domain. Recall, however, that the self-direction and security behavior sets had extremely low internal reliabilities, thereby limiting the size of value-behavior correlations.

Columns 6 and 7 of Table 5 present value-behavior correlations that were stronger with nonmatching than with matching values or behaviors. Such deviations from expectations occurred for benevolence, conformity, and security. The small value-behavior correlations of these domains are probably the reason for these stronger value-behavior correlations with nonmatching domains. These stronger correlations are not higher than what would be expected from correlations of adjacent domains.

*Overall Structures of Relations
Among Behaviors and Values*

We tested the hypothesis that relations among value-expressive behaviors yield a circular structure similar to that for values alone. For this purpose, we used behavior data from all peer reports in Study 3 and from partner reports in one subsample in Study 2 (total $N = 141$).[3] We excluded self-reported behavior from the analysis because we wanted to compare these results with those for a joint analysis of values and behavior. Including self-reports of both values and behavior in the joint analysis would introduce shared method variance. We performed the analyses with the same method used to ana-

lyze the structure of values—Smallest Space Analysis (SSA, see above). Here, the analysis mapped the relations among the 10 behavior sets simultaneously in a two dimensional space, based on the correlations among each pair of behavior sets.

The resultant map is presented in Figure 2. The coefficient of alienation of the SSA projection was .15. The 10 indexes of behavior are arrayed in a circle similar to the prototypical value structure in Figure 1. The only slight deviation was that tradition was adjacent to conformity rather than behind it, a location not uncommon for values as well (Schwartz, 1992). Note that behaviors that express compatible values may be quite different. For example, there is no obvious similarity between the behaviors "use environmentally friendly products" (universalism) and "agree easily to lend things to neighbors" (benevolence). Similarly, behaviors that express conflicting values may not be inherently conflicting. For example, there is no obvious conflict between the behaviors "show modesty with regard to achievements and talents" (tradition) and "take it easy and relax" (hedonism). Thus, it is hard to explain the resultant structure according to the content of the behaviors. What makes the first two behaviors compatible is compatibility in their underlying motivations; what makes the last two behaviors conflicting is conflict in their underlying motivations.

We next tested the hypothesis regarding the overall structure of relations between values and value-expressive behaviors. This hypothesis derived from the idea that the same motivational conflicts and congruities organize relations among both constructs. It posits that the values and behaviors form a single circular structure
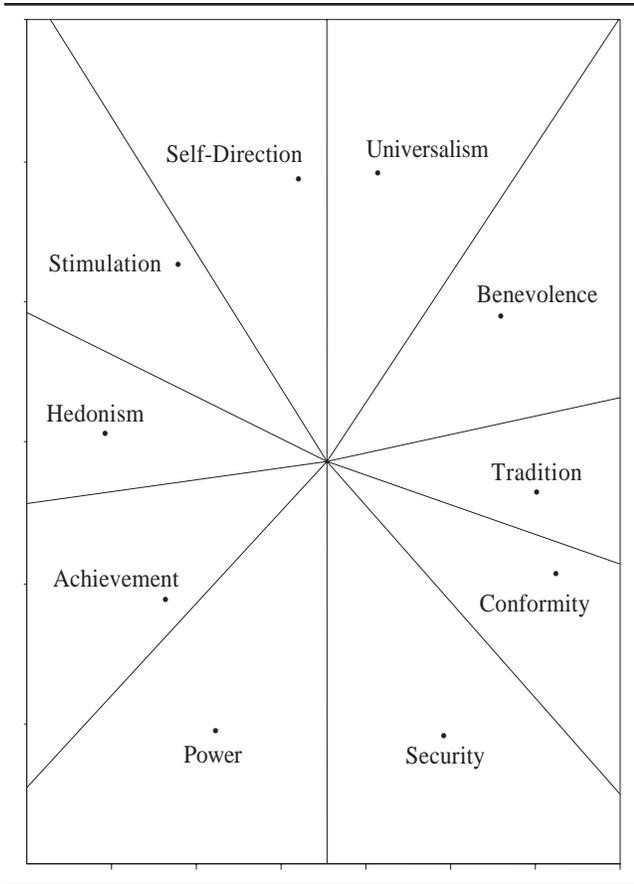
Figure 2   Smallest Space Analysis of observer-rated behavior.

Figure 3   Joint Smallest Space Analysis of values and observer-rated behavior.

in which (a) behaviors are located close to the values they express and to motivationally compatible values and (b) behaviors are located farthest away from the values they violate. This SSA analysis was based on the intercorrelations among self-reported values and observer-reported behavior.

Figure 3 presents the two-dimensional structure from this joint analysis. The coefficient of alienation of the SSA projection was .20. Consistent with expectations, the SSA reveals a clear value-behavior circle quite similar to the prototypical structure of values (see Figure 1). Behaviors are located in close proximity to the values they express and to compatible values. Behaviors are located across the circle from the values with which they conflict. Below, we discuss the one deviation from the order of the value circle, a reversal in the location of the power and achievement domains. This is only a minor deviation because power and achievement values are adjacent in the prototypical value circle (see Schwartz, 1992). Thus, the observed structure of value-behavior relations demonstrates an overall correspondence between the system of values and the system of value-expressive behaviors. This structure is consistent with the motivational conflicts and congruities that we postu-
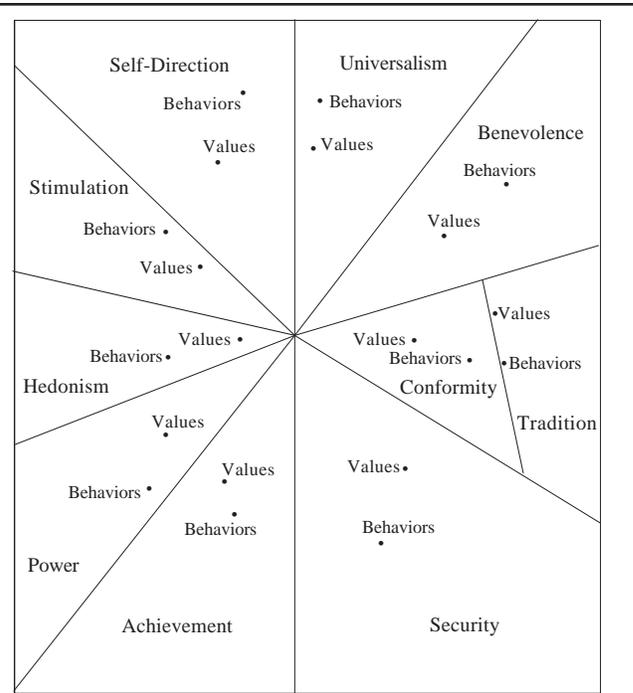
lated to underlie both values and value-expressive behaviors. It may suggest that value-behavior relations are organized by the same motivational conflicts and congruities that organize values.

For a more detailed assessment of the structure, we examined the correlation matrix of values and behavior. For ease of comparison, we present the value-behavior correlation matrix on which the SSA was based in Table 6. This matrix is based on aggregated data from Study 3 and a random half of Study 2.[4] The matrix shows relations between self-reported values and other-reported behaviors ($N = 141$). In a perfect matrix, the strongest correlations in each row and column would be on the diagonal (in bold) and correlations would become less positive as one goes farther away from the diagonal on each row and on each column. Thus, the pattern of correlations starting from the diagonal should resemble a U shape. There is no requirement for a specific difference between adjacent correlations because the value theory specifies only the order of values around the circle and not an exact gradient. Still, it is possible to assess whether the patterns of correlations on the rows and on the columns resemble a U shape. Therefore, for each broad value, we computed the correlation between the value-behavior correlation (with r to z transformation) and the corresponding polynomial coefficient of a quadratic, U-shaped, trend (see, e.g., Keppel & Zedeck, 1989, Table A-4, pp. 573-574)[5] across the 10 behavior sets. This correla-

TABLE 6: Correlations Between Values and Other-Reports of Behavior, Based on Study 3 and a Random Split Half of Study 2 ($N = 141$)

Behavior Set	Values									
	PO	AC	HE	ST	SD	UN	BE	TR	CO	SE
Power	**.25**	.17	.11	.09	.16	−.06	−.25	−.20	−.12	−.13
Achievement	.07	**.20**	−.04	−.14	.06	.05	−.15	−.24	.02	.08
Hedonism	.06	.06	**.29**	.06	.03	−.07	−.07	−.19	−.13	−.05
Stimulation	.19	.07	.19	**.35**	.13	−.03	−.22	−.26	−.20	−.10
Self-direction	.02	−.08	−.08	−.05	**.29**	.15	.03	−.05	−.26	−.13
Universalism	−.13	−.08	−.09	−.05	.17	**.24**	.10	.00	−.03	−.23
Benevolence	−.04	.01	.03	−.06	−.16	−.11	**.18**	.11	.05	−.04
Tradition	−.13	−.09	−.38	−.22	−.25	.00	.20	**.42**	.31	.25
Conformity	−.24	−.20	.03	−.02	−.20	−.02	.16	.20	**.18**	.16
Security	−.01	.04	−.12	.03	−.08	−.06	−.06	.09	.01	**.10**

NOTE: PO = power, AC = achievement, HE = hedonism, ST = stimulation, SD = self-direction, UN = universalism, BE = benevolence, TR = tradition, CO = conformity, SE = security.
Correlations in bold are between each value and its corresponding behavior set.

tion indicates the extent to which the pattern of value-behavior correlations between a value and the 10 behavior sets is similar to a U-shaped pattern of correlations. The averaged correlation across the 10 values (computed with r to z transformation and back transformation) was .67 ($p < .05$). We performed the same analysis for behavior sets. The averaged correlation across the 10 behavior sets was .79 ($p < .01$). We therefore have good overall indication for the expected structure of relations between values and behavior.

Discussion

Three studies explored value-behavior relations in a more inclusive way than in past research. They examined a comprehensive set of values together with a large array of common behaviors that express them. Contrary to claims that values and behavior are rarely related (e.g., Kristiansen & Hotte, 1996; McClelland, 1985), these studies reveal substantial correlations between most values and their corresponding behaviors. The results of the three studies suggest that tradition and stimulation values correlate highly with common behaviors that express them, and hedonism, self-direction, universalism, and power values show reasonable associations with such behaviors. Security, conformity, benevolence, and achievement values tend to relate only weakly to common behaviors that express them.

VALUE-BEHAVIOR RELATIONS ARE STRONGER
IN SOME DOMAINS THAN IN OTHERS

One goal of this article was to assess whether some values relate more strongly to their expressive behaviors than others do. The relative size of observed value-behavior correlations in this study may enable us to answer this question. However, these correlations also might depend on factors other than the real association between values and behavior. We consider three relevant factors—differential sampling of value and behavior items, and differences in variance and reliability of the measures.

The more similar the contents covered by the behavior and value items for a domain, the stronger the observed value-behavior correlation we can expect. Here, we adopted the value items used widely in previous research. There is some evidence that the particular sampling of value items for each domain in the values questionnaire has little effect on value scores and that the range of content for each domain is well covered (Schwartz & Bardi, 2001). We generated behavior items a priori for each domain, according to the definition of the values. Both authors, six additional experts in the value theory, and 39 students proposed items. We sought to cover the full content of each broad value. All of these proposers of items might have overlooked minor content relevant to some domains. However, it is unlikely that they ignored important content, leading to differences in the coverage in different domains. Comparing Study 3 to Studies 1 and 2 provides evidence that the size of correlations did not depend on the sampling of behavior items. The peer-ratings in Study 3 were based on only half as many items. Yet, the domains in which value-behavior correlations were stronger or weaker were similar to Studies 1 and 2.

In one case, nonetheless, we were aware of differential sampling of value and behavior items. It was difficult to translate some of the abstract security value items (e.g., national security, social order) into concrete, common behaviors. Hence, the set of security behaviors did not express the full content domain of the security value concept. This may account for the consistently weak correlations of security values with behavior, but this is an inherent property of the security domain rather than a methodological flaw. Other than this, it is doubtful that differential sampling of items was a significant contributor to the relative size of value-behavior correlations in the different domains.

Substantial differences between content domains in the variance of the value or behavior indexes might provide a statistical explanation for the relative sizes of the value-behavior correlations. To assess this possibility, we standardized the value and behavior indexes in all the studies, thereby ensuring that their variances were the same. We then computed the value-behavior correlations on the standardized variables. These correlations were very similar to those reported above, and the order of correlation sizes was the same in all studies. Thus, differences between content domains in the variance of

value or behavior indexes did not account for the relative sizes of value-behavior correlations.

Finally, differences between domains in the reliability of the indexes might have influenced the relative size of correlations. For example, the set of security behaviors had consistently low internal reliability and consistently small correlations with security values. To minimize the impact of this factor, we computed all the value-behavior correlations with corrections for unreliability, thereby ensuring equal reliability. Then, for each study, we correlated the order of the 10 value-behavior correlations with the correction for unreliability with the order without the correction. In Study 1, the Spearman correlation for self-reported behavior was .94. In Study 2, the correlation was .56 for self-reported behavior and .99 for partner-reported behavior. In Study 3, the correlation was .94 for self-reported behavior and .85 for peer-reported behavior. All correlations were significant ($p < .01$). Thus, the relative size of value-behavior correlations remained largely similar when correlations were corrected for unreliability.

Having ruled out these methodological explanations, we return to the consistent finding that tradition and stimulation values correlated most strongly with the behaviors that express them, whereas security, conformity, benevolence, and achievement values correlated most weakly with their corresponding behaviors. To assess the reliability of the relative strength of value-behavior correlations, we performed a mini meta-analysis of value-behavior correlations across the three studies. Following Rosenthal (1991), we first combined behavior scores across the two raters in Studies 2 and 3 and computed value-behavior correlations with these combined scores. Next, we computed z tests on the 16 comparisons between the strong correlations (tradition and stimulation) and the weak correlations (security, conformity, benevolence, and achievement) in each of the three studies ($3 \times 4 \times 2$). We computed z tests using Raghunathan, Rosenthal, and Rubin's (1996) formula for comparing correlated but nonoverlapping correlations. Finally, we computed the meta-analytic, combined effect sizes of these correlation differences and the heterogeneity of these effect sizes across the three studies.

The combined effect sizes of the differences in value-behavior correlations range from $z = 2.14$ for comparing stimulation to achievement to $z = 3.17$ for comparing tradition to security. All are significant ($p < .05$, one tailed). Six of the eight heterogeneity tests were nonsignificant, indicating that the effect sizes were homogeneous across the three studies.[6] Thus, the meta-analysis supports the conclusion that tradition and stimulation values are most closely associated with the behaviors that express them, and security, conformity, benevolence, and

achievement values are least related to their corresponding behaviors.

Having established that statistical and methodological factors probably contributed little to the pattern of differences across content domains in value-behavior correlations, except perhaps for security, we consider a theoretical explanation for this pattern. Studies of the person-situation controversy are informative. They typically show that the stronger the situational pressure to act in a particular way, the weaker the influence of internal factors (see review in Shoda, 1999). Norms for behavior in relevant groups pose an important situational pressure. People may conform with norms even when the normative behavior opposes their own values. Consequently, the more behavior in a domain is subject to normative pressure, the weaker the expected relation between values and behavior in that domain.

The mean frequency of a set of behaviors roughly reflects how normative the behavior domain is for the group. We therefore computed Spearman correlations between the order of the domains on mean behavior frequency and the order of their value-behavior correlations, in each sample. The first row in Table 7 presents these correlations for each type of rater (self or other). All five correlations were negative, as expected, and all but one were significant. This supports the idea that the more normative a behavior, the weaker its relation to the values it expresses.

A related line of reasoning suggests that individuals experience little external pressure to perform behaviors that express values that are unimportant to the group. In absence of external pressure, the personal importance of values may influence behavior more, leading to stronger correlations of values with their corresponding behaviors. The average importance of a value in a sample reflects the importance of that value to the group. We therefore computed the Spearman correlations between the order of the domains on mean value importance and the order of their value-behavior correlations in each sample, for each type of rater. The second row of Table 7 presents the correlations. All correlations were significantly negative, as expected. This supports the idea that the less important a value domain in a group, the stronger the relation between the personal importance of the value and the frequency of behaviors that express it. Overall, these findings can be interpreted as an indication that values motivate behavior but that the relation between values and behaviors is partly obscured by normative pressures.

STRUCTURAL RELATIONS AMONG VALUE-EXPRESSIVE BEHAVIORS AND VALUES

The mapping of relations among the 10 sets of value-expressive behaviors yielded a circular structure similar

TABLE 7:   Spearman Correlations Between the Order of Mean Be-
          havior Frequency or of Mean Value Importance in Each
          Study and the Order of Value-Behavior Correlations by
          Type of Rater of Behavior

	Study 1	Study 2		Study 3	
	Behavior Rater	Behavior Rater		Behavior Rater	
	Self	Self	Partner	Self	Peer
Behaviors	−.54**	−.14	−.29*	−.48**	−.53**
Values	−.65**	−.40**	−.44**	−.47**	−.55**

*p < .05. **p < .01, one-tailed.

to that for values alone. Moreover, when values and behaviors were jointly mapped, they too yielded a similar circular structure; that is, despite the relatively weak correlations between some values and their corresponding behaviors, the patterns of value-behavior relations are systematic and predictable. Patterns of positive, null, and negative relations among values, among behaviors, and jointly among both are virtually the same. Various factors (e.g., reliability, external pressures) reduce correlations but the shared motivational structure shows through them all to organize values and behavior according to their motivational conflicts and congruities.

This structure emerged despite the fact that the analysis included two different types of variables (values and behavior), obtained from two different sources (target participant and observer). Different types of variables or sources of measurement usually form distinct regions in SSA analyses (Borg & Shye, 1995). Here, however, it is impossible to partition the map into a region of behaviors and a region of values. Instead, the postulated system of motivational conflicts and congruities can account for the observed structure of relations. Thus, the motivational content of the values and the behavior served as a stronger organizing principle than the type of variable or source of measurement.

Although the SSA reveals the expected motivational structure, the circle is not identical to the value circle. In the joint values and behavior SSA, power and achievement reverse locations. As noted, this is a minor deviation from the prototypical structure (Schwartz, 1992). Still, this deviation may point to an interesting difference between values and behavior. Note that this reversal increases the distance of achievement from hedonism so they are no longer adjacent as they are in the value circle.

In the SSA map of behavior sets alone, behaviors that express achievement were located near behaviors that express hedonism. Hence, we do not conclude that these two sets of behavior are incongruent in and of themselves. Rather, the correlation matrix in Table 6 above shows that frequent hedonistic behavior does not

accompany valuing achievement (r = .06) and frequent achieving behavior does not accompany valuing hedonism (r = −.04). Achievement and hedonism values are both grounded in a self-centered motivation (Schwartz, 1996), but their behavioral expression is very different. Hedonism values foster pursuit of fun and relaxation, sometimes at the expense of work. Achievement values promote effortful work, sometimes at the expense of fun and relaxation. Thus, this is a case in which the same motivational goal may be fulfilled in alternate ways that do not necessarily concur. Future research should explore this possibility in greater depth.

LIMITATIONS AND FUTURE DIRECTIONS

The values literature, by speaking of values as guides to behavior, implies a causal impact of values. Because the current data are correlational, we make no causal claims. Causality from behavior to values also fits the findings of positive correlations between values and their corresponding behavior. However, it does not easily explain the structure of relations among values and behavior found here. As noted, behaviors that express compatible values do not necessarily occur together, and behaviors that express conflicting values do not necessarily conflict. Thus, it is unlikely that the structure found here is based on behaviors alone and that values fit into the circle only as abstract representations of these behaviors.

The behavior ratings used here relied on the memory of participants. Perhaps rather than remembering the frequency of acts, observers infer personality characteristics (including values and traits) from the acts and remember these characteristics. When asked to rate a target's behavior, they may then translate back from the characteristics they inferred earlier. Thus, the value-behavior associations we examined may partly be relations between self-rated values and observers reconstructions of target behavior from inferred values or traits. Note two problems with this view. First, Hasher and Zacks (1984) found that people automatically record the frequency of events in their memory. Hence, partners and peers may have encoded the frequency of target acts automatically and used that information to base their behavior reports. Second, if the behaviors were aggregated in observers' memories into general traits, the internal consistency of the behavior scales should have been higher than what we found. Moreover, even if observers inferred general characteristics from targets' behavior and remembered these characteristics, their inferences were based on the actual behavior of targets.

The use of retrospective behavior reports by observers probably weakened findings because human memory is neither completely accurate nor free of biases. However,

there is evidence that such reports can be quite accurate (e.g., Borkenau & Ostendorf, 1987). Better measures of recurrent behavior might be videotapes of participants in varied natural settings over long periods and, more practically, diary or pager techniques. An advantage of observer reports, however, is that they do not rely on the willingness of targets to give honest self-reports. Of course, any single method is limited. It would be best to apply multiple methods to study the broad range of value-behavior relations.

Finally, the samples in this study were homogeneous in culture and religion. Future research should examine relations between the whole set of values and numerous behaviors in other cultures to assess the cross-cultural generality of our findings.

NOTES

1. Value-behavior correlations of participants who completed the value and behavior questionnaires during the same session ($n = 73$) or at separate sessions ($n = 29$) did not differ ($p > .05$). Indeed, for 3 of the 10 values, correlations were higher among those who completed the questionnaires at separate sessions (2 weeks to 7 months apart).

2. The complete value-behavior matrices of this study and of the other studies reported in this article are available from the first author.

3. Using the other split half yielded the same results.

4. Similar patterns of correlation were obtained using other possible value-behavior correlation matrices, such as the other subsample in Study 2 or self-reported behaviors.

5. The coefficients chosen differ from the standard ones in two ways. First, we used only one highest coefficient because we expected only one peak, unlike a regular U shape that has two peaks. Second, tradition and conformity had the same coefficient because they are located in the same wedge-like region in the theoretical circle.

6. There was heterogeneity in the size of the difference between the stimulation and security correlations, $\chi^2_{(2)} = 6.09$, and between the stimulation and benevolence correlations, $\chi^2_{(2)} = 7.51$. In both cases, the heterogeneity stemmed from a small effect size in Study 2. Study 2 was treated as having an $N = 50$, half the size of the other two samples. This smaller N reduced the effect sizes.

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